Cysts of the Oral and Maxillofacial Regions

Fourth edition

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This book is dedicated to the memory of Dr Robert J. (Bob) Gorlin

'Felix qui potuit rerum cognoscere causas'

Vergil, Georgics II, 490

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Foreword

Cysts of the jaws and maxillofacial regions are not new lesions. There is evidence of cystic lesions in the jaws of humans and other animals in the distant past. Lesions of the jaws interpreted as cysts have been found in mummified specimens from the predynastic era (*c.*4500 BC) and from the 5th dynasty (*c.*2800 BC) in Egypt. Early descriptions of cystic lesions of the jaws were written by Aulus Cornelius Celsus (early part of 1st century), Pierre Fauchard (1690–1762) and John Hunter (1729–1793), among others.

From about 1850, papers on the nature and treatment of jaw cysts became more frequent. Attempts to understand the relationship between various morphological types of cyst led to classifications such as Paul Broca's classification of odontomas (1866) which included odontogenic tumours, cysts and malformations.

During the 20th century, a number of recognized treatises on cysts of the jaws were published, including the first three editions of the present book, and the first (1971) and second (1992) editions of *Histologic Typing of Odontogenic Tumours* issued by WHO, which included classification, definitions and histological descriptions of cysts of the jaws. However, since 1992 no updated classification or monographs on jaw cysts have been published. In the WHO classification of *Head and Neck Tumours* (1995), cysts were excluded, as they have been in all WHO classifications of tumours published since 2000.

For some years oral pathologists in particular have been looking forward to an updated book on the subject, so the appearance of the fourth edition of Professor Mervyn Shear's book on which Professor Paul Speight has become joint author is therefore highly appreciated. The book will be of particular interest to postgraduates and specialists in oral and maxillofacial pathology, general pathologists, oral and maxillofacial surgeons and radiologists, and undergraduate students of dentistry.

Both authors have worldwide reputations and are highly esteemed oral pathologists. Professor Shear has for many years been one of the foremost experts on the subject. He has been a member of all three expert groups established by WHO to classify odontogenic tumours and cysts. Professor J.J. Pindborg, who was head of the corresponding WHO International Reference Centre, often referred to Professor Shear as 'The Cyst Man'.

Professor Speight is a diagnostic histopathologist with special expertise in odontogenic and bone tumours of the jaws, salivary gland tumours and mucosal pathology. His main research interests are in the field of oral cancer with emphasis on mechanisms of infiltration and progression of oral carcinomas using, among other methods, immunocytochemistry, DNA transfection techniques, genetic markers and DNA ploidy analysis.

If you are looking for a comprehensive, detailed and updated presentation of our knowledge in the field of cysts of the oral and maxillofacial regions you could not find a better book.

Finn Prætorius

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Preface to the Fourth Edition

There have been many changes to the fourth edition of this book, the first of which was published in 1976, 30 years ago. Professor Paul Speight, Head of the Department of Oral Pathology in the University of Sheffield, has joined Professor Mervyn Shear as a joint author. The book has a new publisher, Blackwell Publishing, Oxford, who have taken over responsibility for the title from Wright and Butterworth Heinemann. The title of the book has been modified to 'Cysts of the Oral and Maxillofacial Regions', which reflects its scope more accurately.

The format of the book has changed and the clinical photographs and photomicrographs are now in colour. The text of this edition has been lengthened considerably in line with the proliferation of new publications in this field, particularly the odontogenic keratocyst. This will be reflected in the current list of references, which has increased significantly. We have tried to keep this text as up-to-date as possible by including articles that have appeared well into 2006.

We have however, omitted the chapters on 'history' and on 'treatment'. The latter chapter by Professor Gordon Seward was well-received by reviewers of the 3rd edition, but the authors and publishers felt that this topic was now very well covered in specialist publications on oral surgery. We have instead added paragraphs on general principles of treatment at the end of each of the chapters.

As in the past, we have attempted to produce a text that will be useful to a range of professionals and also to undergraduate and postgraduate students as well as anyone doing research in this field. The clinical features, radiology, pathogenesis and histopathology of each of the cysts, are set out at the beginning of each chapter, and we believe that undergraduate and postgraduate students will find these useful in their studies and in their preparation for examinations.

This edition has been dedicated to the memory of Dr RJ (Bob) Gorlin who died on 29 August 2006. His contributions to oral pathology, particularly in human genetics, have been extraordinary. In the field of jaw cysts, his name is linked to the calcifying odontogenic cyst, eponymously known as the Gorlin cyst; for his work associating the odontogenic keratocyst with the naevoid basal cell carcinoma syndrome, often referred to as the Gorlin syndrome; and for his studies on the genetics of the syndrome.

Mervyn Shear
Cape Town
Paul Speight
Sheffield
October 2006

Preface to the Third Edition

Over the past 8 years since publication of the second edition of this book, the subject of jaw cysts and cysts of the soft tissues in and around the mouth has continued to evoke considerable interest among clinicians, pathologists and basic scientists, and numerous papers have been published on these topics. Advances in immunocytochemistry have provided the opportunity for studies on the epithelium of cyst linings in an attempt to clarify the pathogenesis of the many varieties and to improve the accuracy of microscopic diagnosis; while further immunological investigations have been undertaken to identify the changes which initiate the formation of radicular cysts in periapical granulomas, and into other aspects of cyst pathology. Basic research has also led to progress in the understanding of the mechanisms involved in the enlargement of cysts. A few new entities have been identified such as the mandibular infected buccal cyst, the glandular odontogenic cyst and AIDS-related bilateral lymphoepithelial cysts of the parotid glands; while our understanding of lesions such as the unicystic ameloblastoma, the botryoid odontogenic cyst and the postoperative maxillary cyst has been enhanced by careful clinicopathological research.

In order to do justice to all this recent work and to bring it to the attention of others in the field, I have added references to about 250 new papers. In preparing the book I have tried to make the work useful to undergraduate and postgraduate students, dentists, oral and general surgeons, radiologists, oral and general pathologists, and anyone doing research in the field. I trust that readers will not find it difficult to gain access to the information they seek.

In consultation with the publishers, Butterworth-Heinemann, it was decided to take the book out of the *Dental Practitioner Handbook* series, and to produce it in a new format. We have also invited the collaboration of Professor Gordon Seward, who kindly agreed to write a chapter on the treatment of cysts. His expert input will undoubtedly enhance the value of the book to those who treat these lesions.

As with past editions, I have received invaluable assistance from a number of people. I am greatly indebted to Professor Mario Altini, Head of the Department of Oral Pathology of the University of the Witwatersrand, for allowing me access to the material in the department, and to him and other members of his staff who were generous in assisting me with the preparation of material. Likewise, Dr Jos Hille, Head of the Department of Oral Pathology of the University of the Western Cape, was most helpful. Many other colleagues were also extremely kind in lending me good sections and good illustrations, and these have been acknowledged in the text.

M.S.
Johannesburg

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Preface to the Second Edition

In the period since the first edition of this book, there have been many publications in the field. This has given me the opportunity of doing an extensive revision of the text by introducing the newer concepts and reassessing the older. Some 160 references have been added, not all of them published since the first edition. The numbers of jaw cysts from my own department which have been used in this edition, particularly for the clinical analyses, have been increased from 750 to 1345. Most of the diagrams have therefore been redrawn and the tables revised to include the new data. These additional cases were extracted from the departmental archives by Dr A. Rudick in preparation for his research dissertation leading to the degree of MSc (Dent), and it is a pleasure to acknowledge his contribution in this regard.

The classification used in the first edition has been modified slightly as a result of my experience using it in teaching undergraduate and postgraduate students.

The number of figures used has been increased by 24 and many of the original illustrations have been replaced. Colleagues have been most generous in allowing me to

use their clinical photographs and radiographs and this is greatly appreciated.

Members of staff and students in my Department have been extremely helpful in many ways and I should like to record my indebtedness to Mario Altini, Simon Bender, Mark Cohen, David Fleming, Chris Rachanis, Stevan Thompson, Archibald Scott, Christine Stewart and Lenah Free. Miss Ann Line typed the manuscript and checked the reference list with great skill and I am very grateful to her. Mrs Marlies Jansen of the Photographic Division of our School was of considerable assistance in reproducing illustrations.

M.S.
Johannesburg

Preface to the First Edition

Cysts of the jaws and mouth have been recognized as clinical problems for a long time. During the past few years, however, there have been a large number of publications on the subject, reflecting a great increase in interest in the causes, pathogenesis, behaviour, diagnosis and treatment of the various types of cyst.

This book was written in an attempt to record, in one volume, current views on these cysts. Clinical data, primarily from my own records, radiological features, discussion on pathogenesis, descriptions of the pathology and brief comments on treatment have been included for each variety. It is hoped that the work will be helpful to undergraduate and postgraduate students, general dental practitioners, surgeons, radiologists and pathologists.

A considerable proportion of this book was written during a sabbatical leave spent in the Department of Oral Pathology, Royal Dental College, Copenhagen, Denmark, and I am extremely grateful to Professor Jens Pindborg, Head of this Department, for so kindly allowing me access to his material and for letting me use some of it for this book. I should also like to record my gratitude to Denmark's National Bank for generously inviting my family and me to live in one of their flats in Nyhavn 18 during our stay in Copenhagen.

In the preparation of this book, I have been very greatly helped by colleagues who have kindly lent me clinical photographs and radiographs of their cases. I am particularly indebted to Professor John Lemmer for allowing me access to the records of the Division of Radiology in his Department of our School of Dentistry. It is a pleasure to acknowledge the very considerable assistance which I have received from members of my Department, especially Mario Altini, Archibald Scott, Janice Croft, Renee Goldstein, Lenah Free, Miriam Nadel and Barbara Marcus, as well as from Marlies Jansen in the Photographic Division of our School.

M.S.
Johannesburg

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Caroline Connolly was the Commissioning Editor for Blackwell Publishing, Oxford, who took us through the discussions leading to the offer of a contract to publish the book. Her negotiating skills and sensitivity to the wishes of the authors as well as the requirements of the publishers were greatly appreciated. After her transfer to another position, her place was taken by Katrina Chandler, who has seen us through to publication. Our main contact with the publisher has been Amy Brown, senior editorial assistant, who has provided invaluable support, guidance and advice in the preparation of the manuscript and the accompanying illustrations. We are greatly indebted to her. Kate Gardner, the Production Editor, and Mirjana Misina, were responsible for all aspects of production of the book: copy editing, typesetting, proof reading and dealing with all the artwork. The authors are indebted to them for their meticulous attention to detail. An academic work of this kind is dependent on a close and harmonious relationship between authors and production staff, and it is a pleasure to recognise the partnership that we have enjoyed.

Our respected colleague and friend, Dr Finn Prætorius, very kindly agreed to write a foreword to the book and we are immensely grateful to him for doing so.

Professor Mario Altini, head of the Department of Oral Pathology in the University of the Witwatersrand, Johannesburg, has been supportive and encouraging, and has generously provided the authors with updated data on the material accessioned in his department since the previous edition in 1992. Likewise, Professor Jos Hille, Head of the Department of Oral Pathology in the University of the Western Cape, has been accommodating in many ways. We should like to thank both of them for their contribution to this edition.

Our colleagues in the Department of Oral Pathology, University of Sheffield have been very helpful in allowing us access to their files and photographs, especially Professor Chris Franklin and Dr Adam Jones who have provided data from their analyses of lesion incidence and Dr Geoffrey Craig for useful discussions on the paradental cysts and for giving free access to his archival material.

Other colleagues have responded generously to requests for use of clinical photographs and radiographs, and they have been acknowledged by name in the legends to the relevant figures. We very much appreciate their kind contributions.

Professor Finn Prætorius of the University of Copenhagen has been extremely obliging in discussions with him on the classification of odontogenic ghost cell lesions, a very complex and controversial subject, and we acknowledge with gratitude his generosity in allowing us to use his most recent classification of this group, as illustrated in Table 8.1.

We are indebted to Elsevier Publishers and Professor Crispian Scully, the editor of *Oral Oncology* for permission to reuse text material from Shear M. 'The aggressive nature of the odontogenic keratocyst. Is it a benign neoplasm?' Parts 2 and 3 in *Oral Oncology*, vol. 38, 323–31 and 407–15.

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